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ABSTRACT

Researchers investigating the improvement of teaching have given little attention to the nature of teaching--the sort of work it is, how it is learned, and its essential skills and knowledge. Research incorporating the teacher's perspective and experience would be useful in any research analysis with the goal of improving teaching. Reported in this document is research conducted from a perspective which takes into account teachers' skills, knowledge, and work environment. This report makes use of teachers' comments, made to the researchers conducting the study, about the teaching profession, teacher research, and their individual work. A chapter on generic features of teaching considers teaching in the context of many human practices, in an effort to identify the family of practices to which teaching belongs. Social features of teaching and their implications for teacher performance are discussed in the next chapter. The next major section analyzes teacher performance and the features which make teacher performance "joint," or dependent, upon other factors such as students. The last section further discusses the "joint" performance of teachers and students and examines the implications of "joint" teacher evaluation, by students and teachers. (CJ)

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TEACHING PRACTICE FROM THE PRACTITIONERS PERSPECTIVE

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I. INTRODUCTION

One subject in the pages that follow is the improvement of teaching. Most discussions of this subject in the last two or three decades have focused on specific proposals for improvement--on expositions of their virtues, on ideas about how to implement them, or on explanations of why one or another turned out poorly. We begin at the other end of the subject. We ignore for the moment all proposals to improve teaching and focus instead on teaching itself. One reason for this approach is our suspicion, alive before this study began but reinforced by our research, that most improvement efforts have foundered in part because they misunderstood teaching. By the time this study was over we had read much of what has been written about improving teaching in the United States, and we had talked with some teachers. One impression that was strengthened by this work was that teachers' ideas about improving their practice are at some distance from the ideas proported by federal agencies and academics who have tried to improve teaching. Teachers' understanding of their trade is of course not perfect, and it is certainly true that in many respects teachers views differ among themselves. But despite these differences we have been struck with the great distance between all teachers' views of how their practice might be improved on the one hand, and the views implied or explicit in various practice

improvement programs on the other. So little of what has been written about improving teaching begins with teachers' words and ideas, and so many improvement efforts have come to naught. It may be fruitful to begin again, a little closer to teachers' ideas and experience.

Our chief subject in the pages that follow is therefore the nature of teaching: What sort of work is it? How is it learned? What are the essential skills and knowledge of teaching? How do they resemble or differ from knowledge and skill in other trades? We have other queries, but these suffice to illustrate the fundamental nature of the inquiry undertaken here. Our investigations also convinced us that even apart from efforts to improve it, teaching is not widely understood. By the time this study was concluded we had read through much of the academic research literature on teaching. Apart from a few books and essays we again found a very large gap between that literature and teachers' own language. There are some notable exceptions to this rule--we think of Willard Waller, of a few of his intellectual heirs still working at the University of Chicago, and a few other contemporary students of teaching. But in the American research literature on teaching this work is but a tiny fragment of the whole vast and still growing volume. It is conceivable that the majority is correct. But in pursuing our queries about the nature of teaching we have found little help in that large research literature. Researchers have given little attention to such questions as are posed above about teachers' work and their skills and knowledge. Nor is there much effort to take

teachers' own comprehension of their work seriously. These lacks are not decisive, but they do suggest the possible value of a different tack. We have therefore pursued our questions about the nature of teachers' work and done so with the help of teachers' ideas about their work

Our aim in what follows, then, is to consider teaching from the teachers' perspective. This does not mean relying only on teachers' ideas about their work, nor does it mean ignoring academic analysis of teaching. It means rather that we consider teaching from the perspective of the work that practitioner's do. What sort of work is it? What sorts must teachers regularly solve? What must they know and do to turn in a good performance? How do they learn? To ask these questions is to ignore much academic analysis, for academics, in the seven or eight decades of their research on teaching, have been focused mostly on measuring the effects that teachers have on what students learn, and explaining the results by reference to some attribute or action of the teacher. Such questions about teaching and learning perhaps cannot be answered well until we have a reasonable idea of the teacher's trade. There is academic analysis that we have found helpful, but even here our questions require that we take a curious tack. For most of the social scientists who have written persuasively about teaching have focused on the social structure of the profession, or on the organization of schools,

or on how schools and teaching fit into the American social structure. These analyses are useful for our purpose because they sometimes suggest fruitful ways of understanding teachers' work, but the suggestions are nearly all indirect. These analysts have not tried to unpack the implications their ideas might have for understanding teachers' work, focusing instead on institutional and social structure. Thus what follows is somewhat apart from the main stream of research on teachers. We have tried to think our way into teachers' work--its nature and problems--and into teachers' skills and knowledge, and we have tried to understand their other resources as well. We have been greatly helped in this by teachers' own comments on these points, and by the writing of a few academics with similar interests. But we have used these resources in our own effort to imaginatively reconstruct the teachers' world and work--and we are aware that we have done so not in her terms but in ours. Some of our terms and ideas were suggested by teachers with whom we spoke, and we hope that the result is a reconstruction that makes some sense to teachers, that is recognizable and even useful to their understanding of their work. But we have tried to devise our analysis of teaching, not to report on teachers' analysis. For what follows is an effort to shape or re-shape the language of discourse we employ to understand teaching, and by implication some other practices

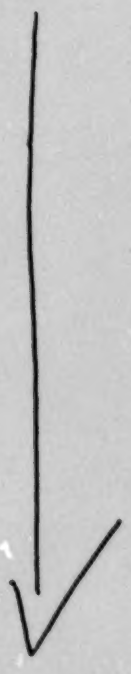
as well. Our chief concern in the chapters is with the language Americans are to understand this trade, and it is for this reason that we have tried to reconceive teaching itself. We ask questions about the sorts of work that teachers do because we believe that the answers have implications for the sorts of categories used to understand that work. As a result we write with comprehension of this practice. We do not expect that either teachers or academics will see a picture of teaching that is familiar in these pages, but we hope that what they see will be useful in considering and reconsidering their views of the teachers' trade.

All of this has been done with the improvement of teaching in mind, but we do not believe that recipes for improvement will fall out conveniently from our analysis. Indeed, often what falls out are puzzles, with no plain guide to action. But our analysis does support some approaches to improvement that seem plainly inappropriate, and it explains why. The analysis also may help to explain why so many recent efforts to improve teaching have had so few encouraging results. In addition, the teachers to whom we talked had some notions about how they learned their trade and how they had improved. Both directly and by implication they presented ideas about practice improvement strategies that made sense to them. Some of these ideas also made sense to us, and we incorporated them into

our discussion. We try to identify some approaches that seem promising, but we are careful to label them approaches, or directions. They are not techniques, devices, or programs. We wish to suggest means of practice improvement and to report teachers' views on this point, but we do so more to help shift the focus of discussion about teaching and its improvement than to promote a new solution.

II. SOME GENERIC FEATURES OF TEACHING

We begin at a rather general level. This chapter considers teaching in the context of many human practices, in an effort to identify the family of practices to which teaching belongs. Work in these practices has some important common characteristics, and understanding them may improve our appreciation of teaching. The attributes that teaching shares with other practices in this family also may throw some light on certain broad differences in practitioners' work, and their knowledge and skill across families of practice. This discussion prepares the way for several subsequent chapters in which we focus more closely on the particular character of teachers' work, on the skills and knowledge they require, and on how these skills are learned and improved.



1. THE OUTPUTS OF TEACHING COMPARED WITH THOSE OF OTHER PRACTICES

Most practices are known chiefly by their products,[1] and teaching is no exception. Teachers aim to change the minds and behavior of their students by helping them to read, to reason mathematically, to sit up straight and love their country. These objectives resemble those of other practices in which workers try to produce some state in human individuals or in their organizations. Psychiatrists try to change the feelings, ideas, and actions of their patients; police officers are charged with maintaining order in a crowd, or regularity in traffic; politicians try to achieve peace, equality, or full employment. In order to produce such results practitioners must work on other humans. Workers in many other practices, by contrast, work on inanimate objects: vinters make wine, silversmiths create jewelry, chefs produce meals and electronics technicians manufacture computers. These practitioners work at crafts or technologies, or some combination of the two, and they practice directly on objects. A third family of practices has intellectual or imaginative outputs. Physicists describe subatomic particles, and zoologists study animate nature. In history,

[1] I will use the terms products, objectives, results, and outputs interchangeably. None of these terms is entirely satisfactory--product and output have an unfortunately mechanical ring, for example. But using them interchangeably seems better than settling monotonously on one.

literature, economics, and painting and their many sub-specialties like financial analysis or opinion research, ideas about man, society, their place in the universe and time, and their meaning are produced and reproduced. These ideas are expressed mostly in words, often in numbers, and sometimes in visual images. This last family also includes practices such as architecture, musical composition, and dramatic writing, in which workers produce what one might call intellectual or imaginative plans. Initiates can understand and appreciate these plans in themselves, but even initiates--and certainly the rest of us--are helped by the realizations of these plans.

The results of practices such as teaching are distinctive in several respects. For one thing they are states of human beings, or of their organizations. Creating these states requires the outputs of other practices--such as ideas or objects--but the states thus produced are neither objects alone nor simply ideas. Discipline is an idea, and it may be produced with the help of objects, but for teachers' purposes it is neither an idea nor an object. It is a social state, a condition of a class. Knowledge of mathematics requires the assimilation of mathematical ideas, but the mathematical knowledge is not reducable to those ideas. To know mathematics also requires

skill in the manipulation of mathematical language, insight into mathematical issues, and perhaps even intution about mathematical puzzles. Ideas are essential to mathematical knowledge, but no less essential are insight and intuition, and if it is separate from them, skill. Mathematical knowledge implies some degree of skilled performance as a mathematician, and such performance requires more than the mathematical ideas found in a text on the subject.

A second distinctive feature of results in such trades as teaching is that they are complex and difficult to specify in authoritative terms. Is knowledge of mathematics reducible to mastery of multiplication tables, long division, addition and subtraction? Many teachers and some commentators on education would answer in the affirmative. On this view mathematics may be just ideas that can be taught--and perhaps even taught effectively by means of repetition and rote. But others would object, saying that knowledge of mathematics includes the insight that enables us to know when multiplication, not long division, is required to solve a problem. Such insight cannot be taught by rote and repetition, even though practice may help to develop it. If knowledge of mathematics includes both of these specifications and perhaps others, how do we balance or integrate them in a broader specification of mathematical knowledge?

The answer is that such balance and integration is possible, but not definitively so. At least several

specifications of mathematical knowledge, broad and narrow, are possible. Each specification may be useful for some purpose, and many may be durable. But they also co-exist and often compete. Some teachers and other authorities, to take another example, define reading as if it were a set of rather specific skills and knowledge--skills of decoding and word recognition, and knowledge of vocabulary and perhaps sentence structure. They teach these bundles of knowledge and skill, and in assessing students' mastery of reading they try to zero in on the same bundles. Others believe that reading is more than these bundles, or perhaps even different. They focus on comprehension of text, on the ability to grasp and manipulate ideas and information, and they teach and assess reading accordingly. Not surprisingly, they take issue with those who understand reading differently. There is much uncertainty about the nature of reading, or at least much room for dispute about its nature, and about how it might best be taught and assessed. There also is therefore much room for dispute about how the teaching of reading might best be improved. In addition, the terms of reference change: reading has a different meaning today than it did at the turn of our century. While we can usefully define reading for the purpose of teaching, then, we do so in several different ways, each plausible. Most outcomes

of education are similarly varied and disputed.

A third distinctive feature of educational outcomes is that we cannot agree on how much of any one is enough. We know that some reading ability is helpful in many of life's tasks, but we have only modest clues about how much is needed. And our clues about how much reading ability we ought to have--if that can be separated from how much we actually need--are even weaker. Thus, the conventions we use to define any given output of teaching are "essentially contested," in one commentator's phrase--a matter of continuing though not continuous dispute. And a fourth feature of educational outcomes is that they compete for priority. However each one is defined it has partisans who believe it should be most important, while partisans of other outputs believe it to be of modest or trivial consequence. Disputes often focus less on the specification of an output than on how much of it we need, or on its importance relative to other outputs.

Another distinctive feature of outputs in teaching and similar trades is the importance with which we endow them. Literacy, learning, mental health, scientific competence or social peace are each deemed sufficiently precious to warrant great effort, struggle, and even enormous sacrifice. For time out of mind mankind has tried to realize these and similar objectives, despite or perhaps partly because of their

indeterminacy. We know enough of their meaning to crave them but not enough to settle on a commonly accepted specification. In a society in which opinion was homogeneous, as a result either of tradition or political monopoly, ambiguity might be much reduced. But in a society as diverse and relatively open as our own uncertainties are amplified by political competition and the free expression of ideas.

2. IMPLICATIONS OF UNCERTAINTY AND CONTESTED OBJECTIVES FOR PRACTITIONERS' WORK

Uncertainty and dispute about objectives has important implications for how practitioners do their jobs. But to see this effect we must distinguish among sorts and degrees of uncertainty, for it is not unique to trades like education. A plumber fixing a leaky faucet may be uncertain about the problem right up until he has the mechanism repaired. In fact, plumbers' work is shaped by the steps they take to deal with uncertainty. They come equipped with materials to remedy most or all of the possible faucet disorders. They replace one part and then test to see whether the leak is fixed. If not, they fix something else and test again. Alternatively a plumber may simply replace the entire leaky faucet with a new one, shortcutting the need for figuring out the faucet's defect step by step.

But if the plumber is uncertain it is only about how to produce a relatively well-specified output--the fixed faucet. This has large implications for his work, for after every attempt at repair he can turn the faucet on and off, and determine whether it still leaks. He can check his performance against a well-specified output, using relatively sure knowledge of the output as a criterion for his work. His efforts may be complicated by constraints, or competing considerations--perhaps the repair must be done for a specific price, or in a very short time, or with materials that are deficient in some respect. But while these may complicate his work and even frustrate it, even these effects can be weighed in terms of that relatively clear result, the fixed faucet. A good plumber is one who can regularly repair faucets, even when the constraints are severe.

The teacher's uncertainties are distinctive when compared to the plumber's. For one thing, the teacher cannot specify many outputs very clearly: in teaching mathematics, for example, should one settle on a general formulation about students' mathematical competence or on a tidy list including knowledge of long division, multiplication up through two numbers, subtraction and the like? The more general the formulation the less guidance it offers in figuring out how to devise and organize a curriculum. The

more specific the list the more likely mathematical insight, intuition and problem solving skills are to be left out. Each formulation offers many opportunities for dispute, and each leaves many areas of uncertainty.

Uncertainty about the objectives of teaching creates uncertainty about how to teach. One of the teachers we spoke with for this study made this point in discussing how teachers try to improve their work:

> ...But you see, there's no agreement on methods. There's no measurement of what works. Nobody measures anything. So if I say such and such a method is good, and a person who is coming from a different position says no, it's not, this method is good, there's no way to evaluate those two things... (TH II)

Thus, the things that are taken for granted in many practices--what a proper faucet does, or how to mortise a cabinet joint--are persistently problematic in trades like teaching. Good teachers must be able to work in spite of much uncertainty and dispute about their objectives.

In addition, teachers are charged with producing at least several different and often conflicting results. A mathematics teacher may want to encourage students' mathematical performance skills, and so devises work that calls for insight, and offers students practice in figuring out how to solve problems. But she may work in a state that assesses students' mathematical competence every year with tests that focus on computational abilities and the memorization of formulae, and so must devise lessons

that prepares her charges for the test. In addition to many of the constraints and competing considerations with which the plumber must cope --time and other resources are short, and the price of many needed resources is often too high--teachers also must cope with a problem that troubles plumbers less frequently--to wit, equally important but divergent objectives. Good teachers must be able to manage such conflicting objectives.

3. IMPLICATIONS FOR COMPETENCE

Teachers and those working in similar practices are thus uncertain about the objectives of their work, and for that reason also uncertain about how these objectives may be achieved. As a result competence in such practices has a distinctive and problematic character. In many trades workers know what a competent performance is, for they can specify their output and learn how to produce it reliably. There is a regular and steady relationship between skill and results. The presence of knowledge and skill that allows workers to reliably produce results is, in fact, our working definition of competence in many practices. Relatively steady knowledge on these points is also important because it enables workers to pass on their skills and knowledge to novices. In practices with indeterminate outputs, however, there is less certainty about the nature of competence. Workers can neither specify

their outputs with much precision nor can they produce any specified version of the result with great regularity and reliability. One of the teachers we spoke with in the course of our research noted his difficulty in figuring out if he was doing a good job teaching English. One of his objectives in teaching, was for students

> ...to have an experience that they enjoy so that they will read more. Now, whether I'm successful, I don't know. I haven't done a real study, but I think that less than half of these kids ever pick up a book and read it on their own...

This objective is not unusually complex or problematic, but this teacher was quite unsure if his results were good ones or not, and consequently unsure about his competence.

In teaching, then, there is not the regular and steady connection between skill and results that is found in many other lines of work. As a result it is more difficult to arrive at a generally agreed upon working definition of competence.

The very things that can be taken for granted in most trades--the skills and knowledge of practice, and the ways of learning them--are a matter of continuing doubt, dispute, and unease in such practices as teaching. Even if we consider these practices in light of their objectives alone, uncertainty and dispute are of distinctive importance.

4. TEACHING IS A PRACTICE OF SOCIAL INTERACTION

But we cannot consider teaching only in terms of its objectives. For a second critical feature of this trade is that it is interactive. Social interaction is of course an element in many practices--steelworkers interact as they erect the skeleton of a new building, and the interaction is very important to the success of their work. But social interaction is not just an element in teachers' work, it is the essence of that work. For teachers work on and with other humans, not on inanimate objects or ideas. The other humans engaged in teachers' work are not just an instrument of that work, but an essential agent and object of the work. A steelworker laboring alone might be able to erect an entire building--albeit slowly, and even at great risk to himself. But a teacher laboring alone could accomplish no purpose of her practice; she cannot work without other human beings to work on and with. These other humans, moreover, are not merely--as the steelworkers may be --instruments ---

required to achieve some other end, such as a completed building, or a society properly trained in civic ideals. The students on whom teachers work, like the psychiatrist's patients, are themselves an object and an agent of the work. Teachers seek to change their students' minds, to improve their intelligence, to refine their beliefs. And they need their students' active participation to do so. In these and many other ways teachers seek to affect their students' very beings, and to engage their students in the task. Students are in one sense a means to other end, but they are equally important as agents and ends in themselves. Social interaction is for these reasons thus not simply a means to some other end of teaching, but it is also an essential, constitutive element of the work.

The interactive nature of teaching has many important implications for the work, and for our comprehension of it. One of these is that the materials of the teacher's trade have reason and will; they are beings who are free or who act as though they are free. They persistently make choices. They make such choices about the teaching performances in which they participate--affirming the teacher's performances with smiles and other encouragements, questioning them with a direct challenge, an insolent look, or a long stare out the window, or doubting them with a question that suggests the teacher has not adequately communicated his point.

The human beings on whom teachers practice can affirm and deny the teacher's work, they can doubt and question it,

they can disagree with the teacher's conduct of a class or endorse it. In these ways and others social interaction introduces additional and quite unique sorts of uncertainty into practitioners' performances. For those other human beings on whom teachers, policemen and politicians work frequently have their own interpretation of the aims of their common work, or their own ideas about how to reach a mutually agreed upon goal. In addition to their own uncertainty about the objectives of their work (and how to achieve them,) teachers therefore also must contend with uncertainty arising from their students' potentially different ideas or doubts.

In this respect teaching differs from the work of those who practice on objects or who produce ideas. A silversmith, for example, may have customers who do not like his rings--who either object to their shape, or decide not to buy them, or both. The silversmith may modify his rings in light of such disputes, though he also may simply turn away and wait for other customers, or try to drum them up through advertising. But the chief point is that the silversmith need not manage the disputes and criticism while making the rings: his customers do not stand before him, half-made rings on their fingers, shouting or carping about the rings' design or about his style of work. The criticism and disputes the silversmith faces may be important to his work--they may even turn it in new directions. But they are ancillary to the ring-making itself. He need not manage the

disputes in order to make the rings.

By contrast teachers must deal with doubt, disagreement and consequent uncertainties that arise within their performances. Managing such doubt and dispute is a regular part of work in trades like teaching--teachers must be prepared to deal with them as part of any or perhaps every performance. Uncertainty arising from the indeterminacy of educational objectives is therefore added to or even multiplied by uncertainty arising from the interactive character of teachers' work.

5. THE INTERACTIVE NATURE OF TEACHING AFFECTS TEACHERS' MANAGEMENT OF UNCERTAINTY

If teachers and other practitioners of social interaction must cope with distinctive sorts of uncertainty, the social character of their work imposes distinctive requirements on how they can cope. For example, teachers cannot ignore uncertainty and dispute when they choose to, nor can they order those on whom they work to ignore them. For one leading requirement of successful work in interactive practices is that there be mutual committment between practitioners and those on whom they work.

Teachers take the need for mutual committment for granted, and so do not feature it prominently in discussions of their work. It is a given. But in explaining why they

think they succeed, several of the teachers we consulted referred to joint commitment. One high school teacher, for example, offered an account of why her classes go well, and are not disrupted:

> ...for one thing, I think that the kids respect me and I think that they know that there is real work going on in the classroom.

Here she refers to the students' commitment to the work the teacher has set out. But in explaining the students' commitment she also refers to their knowledge of her commitment.

> I almost never go in and just say, you know, I'm really tired today and you can have a study or do whatever you want, or anything like that. They know that there is work going on and so it's like they don't mind as much having to tune in, even if they are a little bit bored... they've got to be thinking about something because they feel that we are doing something, whether they see the validity of it or the importance of it or not. We are doing something and that I am working too. It's not just that I'm demanding this of them. (GS I)

The mutual commitment this teacher refers to is a necessary condition of successful performance "...they've got to be thinking about something because they feel that we are doing something...and that I am working too..." In coping with uncertainty and dispute--as in any other aspect of their work--teachers must not violate this requirement lest their performances be disrupted or defeated.

There is of course a great range of mutual commitment. Students may have no choice other than whether or not to submit to a teachers' unilateral rules, because the teacher has greater force at her disposal. But even the commitment arising from such a limited choice has many degrees,

and can be withheld or given in a remarkable variety of ways. Without some mutual commitment successful performance is impossible in practices of social interaction. In other practices, however, only the practitioner's commitment is required. If an auto assembler or a silversmith ceased to be committed to his work continued practice would be difficult or impossible. But in teaching or psychotherapy, even if the commitment of the teacher or the therapist continued undimmed, work could not go forward without their students' or patients' commitment. One teacher with whom we talked explained the difficulty or even impossibility of working without joint commitment. She pointed to:

> ...kids who can write fairly well, but hate to read and don't do very well or vice versa. Some of them are just lazy. They have enough ability and they just don't want to do it, no matter how much they, people have tried to challenge them in the course of the years...

She went on to explain that she tried to "motivate" them--i.e., to encourage them to make a commitment to her and to the work together.

> I'll say to them, why are you satisfied getting 60s and 65s when you could do much better.

But they say,

> "I just want to get out of here."

Much as it frustrated her, this teacher was compelled to admit that her own commitment could not substitute for or

even induce students' commitment.

> ...there is only so much you can do in terms of how you motivate them and challenge them and you have to accept the fact that they have to take some responsibility for this also.

This teacher's comments illustrate her recognition of a further point: commitment in these practices is interactive. If students' commitment fell off or ceased this would negatively affect their teacher's commitment, and hence his ability to perform. Conversely, practitioners' commitment can strongly influence the commitment of those on whom they work. One reason that the teacher quoted just above struggled so hard to "motivate" lazy students was that their lack of commitment diminished the quality of her work--and perhaps also thereby diminished the teacher herself. If she could have somehow encouraged them to make a commitment to her and to the work her own endeavors in that class would have improved. Teachers need students in order to succeed in their teacherly work, just as students need teachers to push ahead in their learning. When their work together succeeds it does so partly because they join in forging a moral bond about intellectual work. When their work fails it often does so because that moral bond has not been forged--and in such cases good teachers feel diminished by its absence.

When teachers discuss this point they often do so in a slightly indirect fashion--referring to the subject matter over which their moral bond with students is forged rather than to the bond itself. One teacher with whom we spoke

illustrated this indirect reference when she tried to explain her preference for a class of advanced placement senior English students over a class of freshmen. Her problem with the freshmen, then, was at least partly that she was giving and they were taking, and that the situation seemed uncomfortably unequal.

> I'm much more conscious of teaching the freshmen something. I'm in front of them. Even though both groups are being taught there, for me, it [the senior class] is much more enjoyable in terms of the way I can relate to the students.

By contrast, explaining her preference for the seniors she referred specifically to what she got out of the class.

> Because I do learn things from them. They are very interesting to talk to. It is a kind of just talking about literature with them, like an informal study group almost.

So the senior class seemed much more balanced. This might be thought of as a selfish construction of the teacher's satisfaction, but in developing her point this teacher called attention to the more mutual quality of her work with the seniors.

> The freshmen are cute in a lot of ways and I enjoy them, but it, I'm not sure how to explain it, with the advanced placement I feel there is a kind of mutuality of learning that is going on.

One way of looking at this is simply that the seniors are more grown up, or smarter, or both. But even if these points are correct, they are not enough. This teacher is also pointing

to the more two-sided quality of the interaction "...the mutuality of learning...". She is getting not only older and perhaps smarter students, but also students who are more able to engage the subject jointly with her. These seniors are students with whom her commitment is more mutual as well as perhaps more profound. The moral bond between students and teachers in the senior class is stronger and more balanced.

If one distinctive feature of teaching and similar trades is uncertainty, then, another is the need for mutual commitment among the participants for successful performance. Teachers and psychotherapists must have commitment from their students and patients in order to work, but they must have it in trades that are marked by distinctive uncertainty, doubt and dispute. Consider this point in the context of teachers' daily work. Teachers try to realize some of the most noble aims of human society in their classrooms--the capacity for critical thought, mastery of complex and often advanced intellectual abilities, an appreciation of many religious and secular values, and such habits of behavior as considerate treatment of other human beings. Yet these ends are neither easy to specify nor simple to attain. And the very people on whom teachers work may have different notions about the meaning of these aims, or of their value, or of how to achieve them, or all three. There is therefore much tension possible over the aims of teaching or over how best to achieve those aims, or over the proper relation between ends and means.

Such tensions create large problems for practitioners and

those upon whom they practice. Who knows what mental health is, or social discipline, or even proper mathematical knowledge for eighth graders? How can teachers know whether they have performed competently in trying to produce them? How can they manage the social relations of practice in light of such uncertainties?

These questions have occupied some great minds, but teachers, social workers, and psychiatrists--and those on whom they work--must deal with them five days a week, several times a day. No one can specify the outputs of their practices with clarity, or general consent, or both. Nor can anyone produce them reliably. Consequently there is no way that teachers and others can regularly be expert in the usual sense of that term. Yet they cannot throw up their hands time after time, confessing ignorance and incompetence. For their success requires the commitment of those upon whom they work, something that frequent confessions of uncertainty might disrupt. Whatever else they do, therefore, psychiatrists and others must produce performances that are sufficiently convincing to maintain the commitment of their human materials, despite uncertainty, doubt, and dispute. This is a central task in trades like teaching--perhaps the central task.

6. IMPLICATIONS FOR TEACHERS' PERFORMANCES

We know relatively little about how teachers produce such performances. We do not know what devices or other means they employ to perform satisfactorily under these circumstances, nor do we know what part skill may play in such performances. The preceding analysis only calls attention to the existence of this feature of teachers' work, and to several considerations that bear on it. These considerations can be quickly summarized. First, owing to the distinctive uncertainties of teaching and similar trades, practitioners cannot produce results as reliably as workers in many other trades. This may mean that teachers are less competent than silversmiths or it may mean that their competence is of a somewhat different sort. But whatever the case, teachers' performances must somehow take account of the inconsistent connections between their efforts and their students' achievements. They must find ways of working that take these inconsistent connections into account, and they must do so in ways that do not disrupt performances. What these ways of working might be remains to be discovered, for few investigators have attended to this feature of teachers' work. It is not even clear that teachers' means of solving this problem requires the development of distinctive skills and knowledge: perhaps teachers solve the problem without recourse to skill.

Second, teachers and those at work in similar trades must work in the presence of different, divergent, and even conflicting objectives. These differences and conflicts partly arise from sources outside their performances and partly from sources within. But whatever the source, teachers' performances must be so constructed as to not be disrupted by different or conflicting objectives--even though there is always the possibility and often the reality of conflict within their performances. Teachers must devise means of managing or reconciling such differences and conflicts as part of their work. These means might be more or less skilled, and this suggests once again the possibility of competencies unique to thse practices. But if such competencies exist they too remain to be identified. Very little attention has been given to the management of conflict, doubt and dissent in studies of teachers' work or in analyses of teaching. These two points suggest the third--namely, that teachers' sense of their own competence is less steady than that of workers in many other trades. For their daily work confronts them with many examples of their inability to produce the result they wished, or their inability to produce it in the way they wished, or even of their inability to figure out what the proper result is. Despite these daily reminders that their

competence is either different from or weaker than that of many other practitioners, teachers must perform as though their competence was not in doubt. They must find ways of performing that maintain the mutual commitment required in their work despite uncertainty about their own qualifications and abilities. Once again, this may call forth skills that are unique to teaching and its companion trades, though it is also possible that the problem can be managed without skill. But in either event the answer remains to be discovered. For this feature of teachers' work as well has been little explored in earlier investigations.

III. SOCIAL FEATURES OF TEACHING, AND THEIR IMPLICATIONS FOR TEACHERS' PERFORMANCE

I have argued that social interaction is a distinctive feature of work in teaching and similar practices. But this work, like any other, is shaped by its particular social organization. Teaching can be organized in many different ways. The nature of teachers' performances, and their skills and knowledge are adapted to the particular social organization their work has in the United States. Therefore it is useful to identify the social organization of teaching and discern its implications for teachers' work.

1. UNIQUE SOCIAL FEATURES OF TEACHING COMPARED WITH OTHER TRADES

All human work is social in some respects. Practitioners in every trade are linked to others through language, through the skills they have acquired, and through the social division of labor. This is true even if they work alone, trapping furs in the Yukon for sale elsewhere. In addition, practice is social because we work mostly in face-to-face groups, or increasingly as faceless parts of large organizations in which workers are in extensive but anonymous contact.

I have argued that work in trades like teaching is social in certain additional respects. Every performance is itself a social

organization, requiring at least two persons--the practitioner and the other human on and with whom he works. In these trades performance occurs only in a group. One constitutive element in these groups is interaction aimed at some output. Another is that all outputs are a state of the person or group practitioners work on. Practitioners thus cannot work without these groups. The psychiatrist cannot practice without his patients, any more than the teacher can work without her students. They can prepare alone and consult with other professionals, but they cannot practice alone. All practices depend upon and exist within social organization, but only in practices like teaching is social organization the very stuff of practitioners' work.

But here the general similarities between teaching and other interactive practices end. For the performance organizations of these trades take many different forms--they can be shaped and re-shaped in many different ways. Most teachers practice in and on large groups--twenty to forty students for five or six hours--while most psychotherapists practice on one other person, or perhaps a few, and only for fifty minutes each. But some teachers practice on only one other person for an hour at a time. Partly in recognition of the large difference from school teaching that this implies, we call the latter group tutors, not teachers. And some psychotherapists practice on large groups in public mental hospitals or in private therapies of various exotic varieties. The examples could be multiplied--

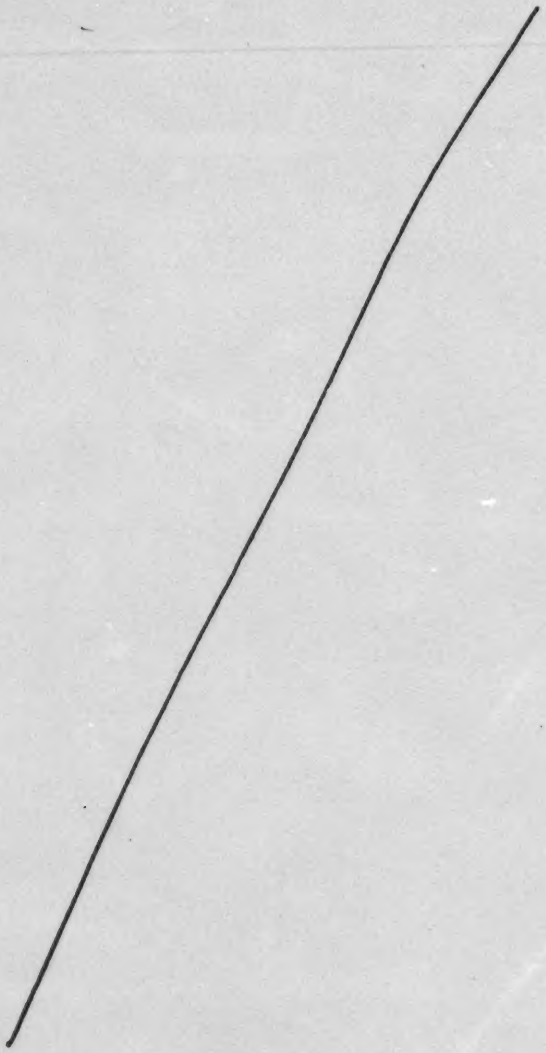
politicians now practice on multitudes spread all across cities, states or the nation, and we believe this has changed their work in important ways from the days in which they practiced on smaller numbers. But the point is that there are large differences among the organizations on and in which practitioners work.

These organizational differences have vast implications for what teachers and other interactive workers do. They also have an enormous impact on what workers must know in order to perform. This is not unique to teaching, for organization shapes work in all trades. Any worker who build cars develops particular skills and knowledge, but differences in the organization of auto production produce great differences in workers' skills. Assembly line workers each develop a few narrow and specialized skills because they are making cars within a particular organization--in this case, a refined division of labor. Were they working in a custom auto maker's shop, building race cars with a crew of twelve and much less refined division of labor, they would develop different and much broader knowledge and skills. Work in both situations is also shaped by technology. The custom auto workers' skills and knowledge would be different if their tools were simple, and powered by humans rather than complex and powered by electricity and hydraulics. And assembly lines simply cannot develop very far without fairly sophisticated technology.

Incentive differences also shape work, and skill. The workers in a custom auto factory each have extensive responsibility in the product in process, and this influence--that is, the sense that one's work is important--by itself may be powerful encouragement for workers to do their best. By contrast most assembly line auto workers have only a tiny responsibility--the cars will be made in spite of their shoddy work--and this knowledge may reduce their desire to do a good job. In addition, in many assembly line situations several workers do the same job, and it may therefore be difficult to affix responsibility for shoddy work. Such circumstances may relax the discouragements for such work. But in a custom shop it would be much easier to know who was responsible for a mistake, and this knowledge would encourage workers to do a good job, and correct mistakes. The owners or managers of a man-production auto assembly plant might try to compensate for these disadvantages by offering other inducements for good work--close inspection of work all along the way, or pay hikes for good results. Or they may find that work quality improves when market forces such as high unemployment induces workers to fear for their jobs, and thus actively oppose full employment policies.

Organization and incentives thus shape knowledge and skill. Or organization presents workers with some tasks

and not others, placing some limits on their tasks while opening other opportunities. Incentives set priorities, encouraging workers to attend to some tasks and not others, or to attend to tasks in one way and not another. Organization and incentives thereby provide a focus and boundaries for intelligence. They encourage its development in one direction and deter its development in another.



Skill and knowledge are in this sense social constructions: they grow up as much because of specific social arrangements as because one worker teaches a skill to another.

The impact that organization and incentives have on teaching can be illustrated by comparing two similar practices--private psychotherapy and public school teaching. Psychotherapy is commonly viewed as the more skilled trade, a result that is due partly to organizational and incentive differences that encourage teachers to attend to managerial problems for large groups while allowing psychotherapists to attend to issues of learning and development for individuals. Teachers have a large and problematic task maintaining classroom order, and they must attend to it closely and constantly. But psychiatrists have little or no problem with patients who do not behave properly in their sessions, and they need attend to discipline little or not at all. This is not the result of psychotherapists' superior knowledge and skill. These therapists do not know things about human behavior which, if taught to teachers could radically transform or improve their disciplinary work with students. Teachers do not continually struggle with issues of discipline because there is something they don't know, and might learn from someone else. One large reason that public school teachers spend so much time on discipline is that they must work with a group of students they did not choose, nor who

chose them. But psychiatrists in private practice deal only with people who specifically apply to see them, and whom the psychiatrists then choose to treat. In addition, while neither public school students nor their families directly pay their teachers, private patients in psychotherapy pay their therapists. These two circumstances--their own choice to see the therapist and the direct costs of the visits--encourage private therapeutic patients to follow their therapists managerial cues, including even the therapist's encouragement to misbehave in ways that may promote the patient's improvement. Children in public schools have no such direct incentives to follow their teachers' cues about behavior. As a result such children are much less inclined either to figure out for themselves what the rules are or to follow them on their own. Children in non-public schools are in a somewhat different situation. Their families do pay the schools directly, and they must secure the school's consent before attending. Private school students cannot remain in their school without the schools' continuing consent, any more than private patients can remain in psychotherapy without their therapists' consent. There are thus some powerful incentives for children in private schools to figure out what the rules of conduct are, and to follow them on their own initiative. Such schools typically have much less serious management problems as a result of these incentive differences.

The organization of school teaching and psychotherapy

reinforces these differences. Psychotherapists in private practice see their patients singly, or occasionally in small groups. And they rarely see each patient for more than fifty minutes a day. But elementary school teachers often see their students for roughly six hours a day. In addition, they see students in large groups. These differences in organization narrow the psychotherapist's managerial work because the scope of his contact with patients is so limited, while they saddle teachers with large responsibility for managing the people on whom they work. Even though the teachers' responsibility is shared by the students, the students' parents, the state, and so on, their managerial tasks are still quite extraordinary. As a result of the large group character of most schoolteaching, even teachers in private schools, where there are many incentives for students to manage themselves, have many more managerial responsibilities than therapists in private practice. Private tutors, however, who we rarely even think of as teachers, have no more managerial responsibility than private psychotherapists. There are strong incentives for their students to do most of the management work on their own, and the teaching is so organized as to reduce management problems to a minimum.

Thus, while managing a young student probably is not inherently more difficult than managing an adult neurotic, school teachers have a more difficult time with management than psychotherapists. The organization and incentive structure

of psychotherapy helps to solve the psychiatrist's managerial problems without his even attending to them, because they make patients the chief agent for their own management. But in public education managing students is a large problem to which teachers must address themselves much of the time, because the public schools' organization and incentive structure do not encourage self-management among students. This difference owes nothing to practitioners' skill or knowledge, but only to how managerial responsibilities are allocated in the two practice.

In fact, practitioners' knowledge and skills grow in different directions precisely because of these differences in organization and incentives. Psychotherapists can develop skills of personal insight and empathy, and can exercise these skills in light of extensive individual contact with their patients. Therapists also can develop their understanding of human emotions, and their skill at detecting and interpreting various manifestations of emotions--in dreams, gestures, speech, and the like. And if so inclined they also can develop or improve their knowledge of themselves, and of the ways in which their own ideas and feelings shape therapeutic encounters. Teachers can do some work along these lines but they cannot do a lot. The incentives and organization that shape their work require instead that they develop skills of group management. Teachers must learn how to detect and interpret various manifestations of group feelings--

indications of restlessness, inattention, concentration, and the like. And they must develop ways of encouraging some group states and discouraging others. The teacher's knowledge and skills are strongly oriented to a complex and fast-moving set of large group encounters while the therapist's are oriented to a simpler and slower moving set of individual interactions.

These differences are not immutable. Teaching could be arranged on the model of private psychiatry. If it were, nearly all of the discipline problems teachers face would vanish, even if no teacher became any more skillful in or knowledgeable about the management of student groups. Indeed, by virtue of such a change teachers would be able to become much less knowledgeable and skillful concerning discipline than they presently are. And if psychiatrists had to treat their patients under something like the conditions in which teachers meet their students, the character of psychiatric practice, and practitioners' skills and knowledge would change markedly. In fact, a rough analogue to this hypothetical change already exists in public mental hospitals. There are great differences in organization, incentives, and thus in practitioners' skill between those working in such hospitals and those in private psychiatric practice. Few patients are in public hospitals by choice, and many wish they were somewhere else. None pay the doctors, and by comparison with their privately practicing colleagues psychiatrists on the public payroll do poorly. There are many patients and few doctors, so that psychiatrists public hospital

can provide little or no individual psychotherapy. To the extent that such therapy is available it occurs in groups. There is, in fact, little psychotherapy in such places--traditionally they were warehouses for the insane, and the chief difference among institutions had to do with how humane their custodial work was. Patients who got better did so because of crude shock therapy, their own determination, fear of remaining, or perhaps time. The psychiatrists in attendance were more administrators than therapists, and often they served as guards or attendants as well. Recently the development of psychotropic drugs has made it possible to release many patients and to treat others. Psychopharmacology has taken over some tasks that psychotherapy might otherwise have attempted, had there been the opportunities and resources. But little is understood about such drugs, and discipline and custodianship are still among the chief skills of public hospital work.

2. THE COLLECTIVE CHARACTER OF TEACHERS' WORK

The school class, then, is not simply a happen-chance location for teachers' work. It is not simply a collection of individuals with whom the teacher deals one by one--as though a class of students were no different than a clump of people waiting for a subway. For one thing classes have some stability in time and space; they last for an academic year, or at least a semester, and the same people belong for the entire time.

For another most classes are so large that teachers simply cannot ignore the group to work with individuals. One implication of these points is that classes develop identities, particular patterns of interaction, traditions, and other unique characteristics. Practitioners must take account of these group attributes in order to work effectively. Each class has certain features that must be taken into account: one is fractious, and simply won't manage competitive activities while another is passive and requires competition to get moving. One of the teachers to whom we spoke during this study recalled a particular class in this connection:

> I had one group, and they would do anything, but they wouldn't risk anything, they would do anything you said. But they didn't want the freedom; they didn't want the discussions. They wanted the papers that you filled out and handed in and got an A or a B. And they as a group, it was real noticeable, and this was the group that all the teachers had said, just wait till you get they [implying that they were a perfect group because they were so docile]. (KJ I)

But this point about group identity suggests a further, more important collective element in teaching: the school class is itself a medium of teachers' practice, distinct from its individual members. The class is a group with a life of its own. In order to teach, the teacher must work through the group. In addition the class is not only the medium but also the agent of learning. The teacher who wishes to reach individuals must reach them largely through the group. In principle, of course,

teaching could be organized differently--as a series of tutorials, for example. But given its present organization, and the size and persistence of school classes, teachers must teach the group. If they wish to reach individuals they must either reach them through the group or figure out some way to temporarily suspend the class, or reorganize it. Some teachers do suspend the class by assigning seat work to the entire group and then working individually with students. Others reorganize classes so as to permit them to work with small groups of students while others are occupied with work on their own. But these and other inventions are all ways of dealing with the group character of teachers' work, taking it into account even if only by figuring out ways to get around it.

3. COLLECTIVE OUTPUTS ARE ESSENTIAL

One of the many important implications of the collective character of instruction is that the outputs of teaching always include some state of the instructional group itself. A teacher may wish to improve students' appreciation of literature, but he also must have order in his classroom. Whatever else practitioners do, they must produce such organizational states. One reason these states are valued is that they are believed to be a precondition of other outputs. A classroom needs some sort of order if academic learning is to occur. A psychotherapist, by contrast, requires no group outputs--he need

only encourage states in individuals. Another reason these desirable states are valued is that well managed classrooms seem in themselves. Teachers, parents, and students often believe that orderly classrooms matter, quite apart from any connection to learning academic subjects. These organizational states manifest values that participants wish to see prominently displayed.

The outputs of teaching are consequently always plural: teachers must both instruct their students in reading and maintain good order in their classes. Many of the teachers with whom we spoke pointed to this feature of their trade. One made the point in particular compressed terms, in speaking about her math teaching:

> I like to provide a medium for them to get to know other kids in the class that they wouldn't normally get to know. I've always said that I consider math secondary to the social skills that I teach kids. (FR I)

This teacher knew that there were two different results but she tried to produce them together, teaching one by teaching the other. But such outputs can not always be neatly tied together. They often differ and even compete. Can learning consideration for others be integrated with learning mathematics without sacrificing some math skills? Is classroom discipline more important than learning grammar? Can they be produced at once? How? Organizational and other

outputs must always be produced together, but their relative importance, and how to co-produce them, are rarely self-evident. There are no authoritative answers to these questions, and participants in performances often disagree on the answers. Practitioners must deal with these uncertainties and disagreements.

The teacher we spoke on this point with noted these disagreements in connection with her approach to teaching mathematics:

> ...I really don't think I'm up there to teach them facts--a lot of people would disagree with that, but I really feel strongly that kids don't learn naturally how to relate to each other and that it's part of a teacher's responsibility to help them do that. And especially in a math class that doesn't often happen. (FRI)

Teachers, then, must devise ways to produce two or more different results at the same time. They must therefore also devise ways to manage competing values. Uncertainties and disagreements are endemic to interactive practices, but in teaching they are multiplied by the social organization of practice itself. The public school teacher faces more conflicts than her colleague in a private school, and they both face many more disagreements and uncertainties in their school work than they would in tutoring a single child in a single subject.

4. TEACHERS' COMPETENCE MUST BE DOUBLE-EDGED

One implication of this discussion concerns teachers' knowledge and skill: in order to teach well teachers must be masters

of both social interaction and subject matter. They must marry technical knowledge with interactive skills. This comment applies to all workers in interactive trades at a general level--a good psychotherapist must master both technical knowledge of human psychology and skills of interaction in therapeutic settings. But each interactive practice has its own version of this requirement. For teaching it is mastery of large group interaction and subject matter. Teaching well always includes both, though the balance of the two varies among situations.

For some purposes it is helpful to distinguish the skills of social interaction from other specialized knowledge, such as the theory of neurosis, or the concept of number. The distinction is useful in training practitioners, for example: they need not learn everything in one great gulp. Those who wish to teach mathematics may find it useful to put aside learning about the social side of teaching in order to learn the subject. But the distinction between the technical and interactive aspects of these practices is in one respect a hindrance: if we wish to understand the competence of mathematics teachers, as opposed to their competence as mathematicians, we must understand how they connect skills of social interaction with knowledge of mathematics.

Teachers and workers in similar practices must (therefore) put together two things that need not be joined in other practices. Carpenters may have to interact with each other on a job, and if some are socially clumsy it may make the association unpleasant. Still,

the quality of the woodwork need not be affected. Surely carpenters would not regard interactive skill and knowledge as their special province. But social and technical skill must be integrated in teaching. One teacher with whom we talked made this point in particularly clear terms:

> It's important to be competent in your discipline, but I think a lot of it has to do with classroom management. If you can't manage a classroom, it doesn't matter how good you are in your field. You have to be able to keep the kids interested and keep them treating each other with respect, and you too. (JWI)

Sometimes the integration of social and technical skill seems to take the form of dealing with the social side of practice as a preliminary to the exercise of technical skill. Teachers, for example, say that they must have their classes settled down before reading or math can be taught and learned. Interactive skill and knowledge is thus seen as a precondition for the exercise of technical competence. But upon closer inspection technical and interactive knowledge cannot be so neatly distinguished. For managing the interactive features of performances is not a one-shot matter, arranged at the beginning and then forgotten. The teacher who settles her class down at 8:15 a.m. must have ways of making sure that it stays settled at 9:15. These may include persistent reminders, with glances, gestures, or words. Or the teacher may keep the work so interesting that students remain settled with no other attention from her. Similarly, the psychotherapist treating a patient who has doubts about the value

of therapy will not be able to dispose of the matter once and for all at the outset, and then move on to more substantive matters. Instead the doubt will be a continuing, perhaps even central element in therapy. Practitioners must devise ways to solve the social problems of their practice all along the way, not as a preliminary but as a close companion for their technical work.

This does not mean that the technical side of teachers' work is unimportant. Teaching reading, for example, requires a set of technical skills related to certain cognitive operations. The teacher's understanding of reading, his ability to select appropriate examples, and his grasp of the significance of mistakes all include much technical knowledge and skill. But these skills are also social in the sense that they can be used to good effect only when fitted to social interactions. Certain examples make sense with one student but not another. Certain exercises will work with individuals alone but will not work for a group. Certain approaches will work in one classroom but not another. One teacher with whom we spoke noted the differences among classes, and their implications for his teaching:

> I used to teach, sometimes, Faulkner's The Bear, although lately I've found that the kids seem to be less able to deal with that than they used to be. It's too heavy from an interpretive point of view. They can't deal with the style. It may be that I have a slightly different group of kids in terms of their actual capabilities and experiences that I might have had several years ago. I used to use that quite regularly and it seemed to work, and the last couple of times that I used it it hasn't. (TH II)

Thus while good teachers must command the technical side of their subject this knowledge can be used only in social interaction. To beome a skill of teaching knowledge of a subject must be fused with skills of managing group interactions.

Teaching well, then, consists partly in devising collective activities from which many individuals can profit intellectually. Taking parts in reading a play aloud and then commenting on it, rather than having it read silently and individually is a simple example. Orchestrating such an activity requires skills that go beyond textual criticism of drama. Using discussion of problems in social studies or literature rather than relying only on individual reading and lectures is a slightly more complex example, for in discussion students can learn from each other's ideas, and from each other's views of their teacher's ideas. One teacher with whom we spoke discussed the way in which she managed discussions of literature in an advanced placement English class. The class was so motivated, she said, that students were able to teach each other with less than the usual guidance from her.

> ...the kids talk a lot and not always directly to me or the class, but they are talking about what we are talking about. It is just sort of like they are very bright and are very interested in, and somebody else is talking and they almost like can't wait to say it so they'll have this little interchange and that would have bothered me the first few years I taught. Now I realize the dynamics behind it and of course I can't let it go indefinitely...but it's not a major problem...(GSI)

Because these AP students are engaged with the subject and bright she is able to let the class manage itself to an unusual degree. The discussion flows freely among the students in part because they keep it focused on useful issues themselves. This teacher noted, however, that she manages discussion differently in other bright classes. Her students in Freshman English

> ...are much less mature and they tend to be giggly and everything and I do have to clamp down on them more, but at the same time there are ways of doing it that are not...I mean some kids-you can just sort of joke them out of it or tease them about it, or, and sometimes you just have to come down a little bit more strictly with them. (ESI)

Devising collective activities from which students profit intellectually is this teacher's aim in both classes, but she adapts her teaching to differences in the classes. In both cases, however, students become the agents of each other's instruction, and they learn things that might otherwise have slipped by. Teachers can accomplish things with groups that would be impossible in individual tutorials.

Even seemingly technical skills are therefore deeply social in such practices as teaching. Technical skills can be employed only in social settings, and must be integrated with knowledge of social interaction to be effective. Since there is considerable variability in such settings, one implication of this point is that the skills and knowledge of teaching are only rarely transportable en bloc. They cannot be learned once and for all, and then be expected to work again and again in

subsequent interactions. One teacher discussed this point in explaining how dependent her teaching was on class-to-class differences in group dynamics.

> I've got a class now where I let them work in friendship groups for one unit and I turned them around and I broke them all up. Just so that I made them as different as I could, and they worked perfectly the next unit. I had [another] class, just the opposite. As soon as I broke up the friendship goup, I had intense problems. So you can't tell in advance which is the best way to go. (TH II)

As a result, the skills of teaching are not a fixed stock; they cannot be learned once and for all. In a sense they must be learned over and over as they are adapted to particular interactions.

5. CONCLUSION

One point that falls out from this analysis is that competence in teaching is fundamentally different than competence in many other occupations. In other trades competence is identified with technical knowledge and skills that are learned on the job or in specialized preparation for it. Teaching has such skills and knowledge of course. One of the teachers we spoke with pointed to them:

> ...a teacher has to be trained in his or her field. I felt that as an English teacher I was a lot better off being an English major and never thinking about teaching than I would have been if I'd gone to a university and majored in education. Because everything I hear about that is that it's a bunch of crap. (TH III)

But teachers need more than knowledge of their subject--they also need interactive skill and knowledge, and they must marry these to their technical knowledge. This teacher acknowledged these points in her comment:

> Now my observation is that once you know your subject then you certainly could spend some time learning about how to teach it. (TH III)

When she tried to expand on this point, though, she ran into a common problem. She said that it was difficult

> ...to identify the kinds of skills that make for good teaching; like interpersonal communication, the ability to develop somebody, you know. I'd have to make a list of them...(TH III)

She could not make such a list, however. What are the interactive skills of teaching, and where are they learned or sharpened? Are they learned on the job or in training? If so, then they are acquired for the specialized purposes of teaching. But many teachers complain that no-one ever taught them how to teach. Certainly the "how to teach" skills this teacher just identified are not unique to teaching. "Interpersonal communication, the ability to develop somebody..." sound like generalized skills of social interaction, not specialized skills of teaching. If so, they would be acquired as one learned how to get along in human society, not as part of teacher training. If this were true, then it also would be the case that in order to work competently teachers and social workers would have to integrate certain seemingly unspecialized but perhaps considerable interactive skills with more specialized technical skill and knowledge. This repertoire would be distinctive but problematic, for we lack much of a vocabulary for describing social know-how, let alone understanding its integration with technical skill and knowledge. The teacher in her comment just above suggested this and she elaborated the idea in a further observation:

> But whatever these skills, teaching in the school, you never talk about those skills by name. Just talk about being a good teacher or not being a good teacher. (TH III)

The integration of technical knowledge with interactive skill is an essential element of good teaching, yet it remains mostly unexplored by, indeed even unknown to commentators on this trade.

This little foray opens up many fascinating questions. How is such integration accomplished? How do teachers learn their trades? How specialized are the skills of teaching--and how could they be improved? We will return to these and other points after exploration of other social features of teachers' work.

IV. TEACHERS' PERFORMANCES ARE NOT THEIRS ALONE

Because teaching is a practice of social interaction every performance is a joint creation, produced as much by those on whom practitioners work as by practitioners themselves. The joint character of performances holds even when the materials of practice appear to be passive, for their very passivity powerfully shapes the interaction. It would be unusual for a psychiatrist working with a mostly silent and submissive patient to have much success. And teachers whose work is greeted by students' withdrawal are similarly unlikely to produce impressive results. In both cases, even though at first glance it seems that the practitioner is the chief agent in the situation it would be more accurate to say that the people he works on are equally influential, even if not as active. This feature of teaching has many important implications for understanding teachers' work, and their knowledge and skills.

1. OVERVIEW OF JOINT PERFORMANCE

The joint character of performance is typically ignored by commentators, and often by practitioners. They leap mistakenly from the fact that practitioners have greater knowledge or authority to the idea that they are therefore more powerful. There is a common tendency to picture the

outputs of these practices as the result of practitioners' active work on their passive materials. Many social scientists write about teachers and school administrators as though they were the powerful agents of society's will, impressing knowledge and beliefs on passive students. And many teachers and administrators organize their work as if on the same assumption--as though their job were to give knowledge actively and the students' job were to receive it passively.

But thought and action of this sort ignores the large contribution that the other people in performances make, impressing their beliefs and wishes on practitioners and on the organizations in which they perform. For performance in these practices are always interactive, and thus power is rarely coextensive with authority. Indeed, when the performance organization is a good-sized group, as it is in most school teaching, the interactions are so complex that they place considerable limits on any single person's relative importance in producing performances-- the teacher or any student. In a psychotherapy session, by contrast, the performance organization has only two members; its size is such that either one can have an enormous influence on the proceedings. In teaching, however, participants often influence performances by way of group action. The most familiar example of this is the student who disrupts a lesson by inciting his classmates to a fit of giggles, or worse. But the same principle holds for constructive classes. In any academically productive classroom the students must produce a willing presence,

a collective commitment to those complex operations we call reading, or physics, or music. They must attend to the teacher, and to the issue under study. They also must attend to each other, listening to what each says and trying to understand it. Each therefore takes a role in advancing not only his own understanding and skill but also that of others. And the students must not only do all this, they also must not do all sorts of other things.

One of the teachers with whom we spoke pointed to her students' power to shape classroom work when she commented on differences among her classes.

> I run them (classes) all differently. Obviously the senior AP is going at a tremendous speed, and it's covering a great deal of material. I can go into that class and I know that everybody has read everything that I asked, so that we can use [it] as background, as a jumping off place. But when I'm working with a low ability class I can assume that some of them have read it, some of them have read it and not understood it, some of them have not read it and are pretending that they have, and others aren't even pretending that they have read it. Classes are different even within ability levels. (JW II)

The teacher here refers to the importance of students' interest in shaping what she and a class can do together. This interest may be affected by students' ability, or it may be affected only by the social organization of classes by ability. In any case she noted that there were large variations in students' interest and commitment within ability levels. And she noted other factors that affect students' commitment.

> It depends on the time of day as much as anything. The second period class is pretty droopy, even though they're the same level as the sixth. [But] in the sixth I have to actually tell them to please wait, take a break, let somebody else say something, then they can jump in. (JW II)

Another teacher with whom we spoke referred in similar terms to students' power to influence her classroom performances. Her regular history classes, she said, did not enjoy writing very much, and complained when she tried to assign extra writing. Since she carried a full teaching load--about one hundred-fifty eleventh graders--she acquiesced, and only assigned the standard writing load. But two other classes really liked to write, and so she assigned them more, so much so that she graded and commented on forty-five essays a week. She noted that her district didn't recognize or reward this work, and said that she and most teachers were somewhat demoralized by budget cuts, income losses and the like. Nonetheless, she said that

> I do the extra work because they [the students] like it. It's much easier when the students appreciate it...the others don't, so I don't put in the extra work for them. (JC I)

Students' collective power in producing classroom performance is considerable, then, even though their authority is quite modest. Producing a successful class is a complex collective enterprise in which students play a large role, one largely unrecognized in both academic commentary and in many teachers' work.

The joint character of performances has important implications for understanding skill and knowledge in this occupation. One simple point is that teachers cannot monopolize them. In observing classes one often sees students helping

each other to learn reading, computation, writing and other things. In such instances students teach each other, not only unwittingly by the example of their errors but also deliberately as instructors. Because school teaching is a large group activity such teaching among students often occurs spontaneously. It also is sometimes deliberately arranged by teachers. One of the elementary school teachers with whom we spoke explained how she used students to teach each other in social studies.

> I have them work in groups because I think it, it solves a lot of their own problems. You know, [some kids will say] "I can't do that." Well, ok, if you can't do that, someone else is probably pretty good at it, you can do something else.... When I give an assignment like that, and I present it in such a way that, here are all the things you can do...and then I set them off and they're all involved....They go to the library, they get their things...and I know things are going well when they're telling each other "Here's what we're going to do" and "We're going to do it this way".... (KJ I)

This teacher's point is that because teaching performances are jointly produced she can vary the balance of the teaching that she and her students do--and thus vary the power they actively exercise in each others' learning. She put a nice point on her discussion by saying of such group work that

> I could leave the room. I could leave the room and they'd be just fine. There would be nothing going on except working. That's when I know, when I can walk out of the room. (KJ I)

Arrangements of this sort redistribute the skills and knowledge of teaching. For when students are delegated formal responsibility

for teaching each other they have to exercise and perhaps acquire more of the skills that teachers now seem to monopolize. But while this sort of delegation often happens unwittingly, it is not a regular planned occurrence, especially in the upper elementary and secondary grades. Teachers there typically act as though they were the sole producers of classroom performances.

Such delegation seems particularly fitting in school teaching. One reason has already been discussed: since school teachers work with large groups they must use the group in order to accomplish anything. Many teachers use the group in only limited ways--for example, by encouraging group discipline, consideration, and attention to the teacher and the task. While these are often no mean feat, they encourage a sort of passive engagement with education. Class groups can be much more effective educationally when they are more actively engaged as educators. As such they can multiply the teachers' impact.

A second reason delegation of instructional responsibilities seems fitting is that such delegation is in any case an essential part of education--it resides in the work itself. For teachers simply cannot do their job well without passing on at least some of their skills to students, so that students can continue to teach themselves. The teacher who helps a child learn to read must provide him with the skills and knowledge that will enable him to instruct himself further--and these would help him to instruct others. A psychotherapist who effectively assists a patient in dealing with some emotional problem can do so only by transferring some of the skills of psychotherapy to

that person, even if on a limited basis. In fact, one of the great stylistic and philosophical differences among practitioners is in the extent to which they consciously seek to transfer their skills to their students, patients and clients. But however teachers may differ on this point as a matter of principle, good teachers of all persuasions do their work by giving themselves away. One cannot teach students how to crack mathematical puzzles without teaching those skills of problem diagnoisis that a good teacher must use in her selection and explanation of math problems. One of the elementary school teachers with whom we spoke said that she tried to alert children to their role in their own education; she tried consciously to teach them the very problem-solving skills that were central to her own teaching.

> I think it's the thing we all need most to learn, cause we really do it all ourselves, and kids begin... it's a big secret that teachers usally keep from kids...I don't think it needs to be a secret. I think it can be very clear that there are ways to do anything, and you have to do it yourself and I'll show you how to do it. And I feel strongly that I want my kids to learn that they're doing it, that they can do it without me... (EP II)

One might even argue that to teach well is to recurrently make oneself unnecessary, by enabling those on whom one works to become the agents of one's own practice. This does not mean that every good student is therefore a full-fledged teacher, nor every patient a therapist. The teacher whom we quoted just

above was quite clear that there were big differences in skill and responsibility between teachers and students.

> There are things that I will expect them to do and which the world expects them to do, and which as a teacher it's my obligation to have them do. ...my gift to kids is to have them realize, hey, they can do it, but they have to do it...it's very powerful. (EP II)

It seems particularly appropriate that this teacher described her work as a gift. For in teaching as in most practices of social interaction, the practitioner can only succeed by giving away his most important possessions. Teachers are everywhere necessary, but to do their job well for any given student they must make themselves forever unnecessary.

A more schematic way to put these points is that in practices like teaching there are always two agents: the practitioner and those humans on whom he works. In all other trades the practitioner is the sole agent. As a result, in teaching and similar trades there are always alternative ways in which a particular task can be accomplished: the practitioner can be chiefly responsible; the materials can be chiefly responsible; or they can cooperate as co-workers. Each of these alternatives implies different allocations of the skills and knowledge of practice among participants in performances. If one way to think about practice improvement is improving the teachers' skill, another therefore is to change the allocation of responsibility within schools or classrooms so as to change

the allocation of teacherly skill. Because performances in education are jointly produced, there are more ways to improve practice than by improving teachers' skills.

The alternatives for allocating agency and skill are unappreciated by most teachers, administrators, and commentators. Indeed, the guiding ideas of these practices falsely exalt the practitioners' status, and exaggerate their monopoly of skills and knowledge. Such exaggerations are perhaps an understandable defensive reaction in practices whose everyday work vividly demonstrates the practitioners' dependence upon those with whom they work. Workers in such trades develop an extraordinarily keen sense of the uncertain efficacy of their skill, and many worries about their powers. But however understandable it is such defensive exaggeration understates the collective character of work, and this is self-defeating. Teachers and administrators who ignore the power of those on whom they work thereby discourage and frequently depress those others' performance. And when research and training focus chiefly on practitioners, as if they were the only agent of practice, they close many windows on understanding the important contribution students already make, and on the larger contribution that they might make if properly organized.

2. INTERACTIVE IMPROVISATION

Because all performances are jointly produced in teaching, practitioners' improvisations--a common feature of practices--take on a remarkably different character. Improvisation is an important element in all trades, for to improvise is to adapt existing skills and knowledge to new situations. Improvisation often requires quick decisions, and on-the-spot adjustments of existing skills to novel circumstances. In this sense most practitioners learn as they work, devising somewhat novel procedures or inventing slightly different goals, adjusting what they know to what they couldn't predict. In extending their experience they broaden their competence. Plumbers improvise as they try to repair an antique toilet by adapting spare parts from newer models; jazz musicians improvise as they invent variations on existing themes; and furniture makers improvise as they adapt differences in the grain and density of wood to existing chair designs. Workers who do not improvise even in some small measure must be automata, working by sheer habit.

But if improvisation is in this sense similar across all practices, there also are some noteworthy differences. For one thing the specificity of outputs differs across practices and this affects the type and extent of improvisation. Classical piano performance is currently much more narrowly specified than jazz piano, and

improvisation has a much larger role in the second case. This difference arises from social custom and professional opinion, and these could be otherwise. The outputs of teaching, however, are inherently less determinate than those of ceramic pottery, and so in principle there are more possibilities for improvisation in teaching than in ceramics. Of course both potters and teachers improvise--often that is how they figure out what their output will be. Once a potter devises a product, however, he can replicate it nearly exactly, by using the same methods and materials time and time again. The teacher cannot. One reason for this is that his outputs are much less determinate than the potter's--even though they can be severely restricted by custom, professional opinion, and other factors.

A second reason that teachers cannot replicate the results of earlier improvisation, as jazz muscians and potters do is that teachers never improvise alone. In most practices improvisation is entirely the practitioner's work; he alone adapts his knowledge and skill to certain novel features of his materials, or to new requirements of the task or the setting. But in teaching and similar practices improvisation is interactive. Practitioners work on human individuals or groups who make large contributions to performances. A hint of this facet of the work can be gained from improvisational theatre; actors and actresses face complex challenges when they quickly make up

skits on the basis of random suggestions from their audiences. But how much greater would be the challenge if these actors had to improvise their skits in collaboration with their audiences, using the audience not merely to initiate suggestions for performances but also as full participants in the acting. This comparison suggests something of the character of practices like teaching, in which such interactive "skits" compose much of the work. Listen to one teacher describe her love of performing:

> Part of the pleasure of performing, whether it's on stage or whatever, is the interchange with the audience, that you get some kind of feedback. Maybe when you are on the stage obviously, the audience isn't answering back or anything like students in a classroom, but you can tell by the applause or the laughter or whatever...(ES I)

When the participants "answer back" in addition to applauding or hissing improvisation becomes extraordinarily complex and chancey. All practitioners must adapt their skills and knowledge to unforeseen conditions, but teachers and students must respond to each other's spontaneous and unpredictable behavior. In teaching and similar trades it would be impossible to work without some spontaneous joint contributions. Workers in most trades must make up their performances as they go along, at least in certain small respects, but only in practices like teaching do practitioners make up their performances in response to the made-up performances of those on whom they work, and vice versa. As a result workers in these practices cannot

replicate most performances, and must improvise even as they struggle to approximate an earlier result. The craftsman, by contrast, can replicate a prior result quite nicely, even though improvisation was required to achieve it the first time.

Understanding the interactive nature of improvisation in teaching opens many windows on practitioners' performances, and on the skills they must develop. One point, while obvious, is of great importance: practitioners must deal with unpredictable changes in their performance organizations. One way to do this is to reduce the opportunities for such changes by means of rigid rules and procedures. Many teachers deal with the unpredictable nature of their work in this way, by sticking to a set curriculum, using fixed exercises with pre-specified correct answers, and the like. Another line of restriction focuses on social interaction--assigning individual seatwork, or only calling on students one by one in whole class activities. By sticking to a set curriculum--a single text for example--teachers can restrict opportunities to probe many uncertainties in the subject matter and by implication in the objectives of their work. By restricting classroom interaction to lectures or individual questions and answers teachers can reduce students' opportunities to open up uncertainties by exploring the subject matter more on their own initiative. One of the teachers with whom

we spoke called attention to the differences between these approaches:

> Well, I've become convinced that a good learning situation should be one in which students are actively involved and it is my observation that the easiest thing to do is to do just the opposite: have the students be controlled and have the teacher present the material for the students to learn. (TH I)

Notice that this teacher sees two separate elements in the easy strategy "...have the students be controlled and have the teacher present the material...." These two lines of restriction are somewhat independent. Teachers can relax restrictions on interaction while maintaining restrictions on the definition of subject matter, or they can do the reverse. Each manages one source of improvisational uncertainty in classroom work. And each makes it possible for teachers to develop their skills and knowledge within a somewhat restricted terrain. Knowledge of subject matter can be limited to the set curriculum,and interactive skills limited to managing a hierarchical, routine classroom.

Another approach that teachers can take is to use improvisation as a central element in their work. This allows them to take advantage of the joint character of teaching performances and it also permits them to probe subject matter more deeply. To do so practitioners must learn to adapt to many unpredictable developments, inventing performances on the spot. Many teachers learn

to organize their insights, questions, and other classroom interventions in quick response to shifts in students' interest and response to the materials--shifts about which teachers often have little notice, and only fragmentary knowledge. Such improvised performance can become a central feature of teachers' work, and much competence can grow up around interactive improvisation. Such teachers develop the knack of turning wrong answers into instructionally helpful exercises. They learn how to ask questions in ways that open up avenues of fruitful intellectual conflict in the class. They learn to notice when a class had had enough group work, and needs time to recoup on their own. One teacher said of such work that "I have a plan in my head. I think I have a pretty good set of individual priorities on what's valuable to me as a person." But, she went on, "I get my cues from the students." (KJ I)

But if interactive improvisation opens up many opportunities it also can confront teachers with many problems. First of all, effective improvisation requires deep knowledge of subject matter. Beginning pianists cannot improvise jazz sequences; inexperienced plumbers cannot figure out innovative ways to build sinks; and novice mountain climbers cannot compose a successful attack on a deadly cliff. They simply don't know enough. The same principle holds for interactive practices. A teacher who knows little about physics will

not be able to improvise much of a lesson on aerodynamics around the swallow that mistakenly swooped into her classroom. A social worker new to her trade will not be effective in helping her clients make the best of rules and regulations. Skillful social maneuvering that lacks a solid foundation of technical knowledge is quite limited. The more profound that knowledge is the greater the possibilities for effective improvisation. The thinner practitioners' knowledge of the subject the more they must reduce the opportunities for improvisation.

One teacher with whom we spoke took note of these connections in discussing the poverty of much elementary school science teaching.

> You ask kids in the elementary level, most of them think science is a book that their teachers have put them through. Now that's all it is in most of the elementary grades....And so kids don't know, they don't have any sense, like what's science to you guys? It's learn about weather in a book. And I think it's the fault of the teachers who are grasping at straws, using the book because they are not too confident and I think science should be like an area where you could make teachers feel real free as to what they'd want to do with their kids. And not have to stick to the book. But they go back to it out of desper tion. (KJ II)

Lacking any knoweldge of their subject teachers stick closely to the text. They dare not probe the subject deeply because it is a large unknown; they fear that they could not do their job at all if they strayed from the text. One English teacher with whom we spoke made a similar point,

connecting teachers' own education with their later work in classrooms.

> I always wondered about education degrees, when people come out with not a degree in English but one in education. I feel like, they've taught you to teach, but what have they taught you to teach? You must have content. I think if you're teaching Shakespeare, you have to be able to make references to everything taken from Shakespeare, from Shakespeare up to right now, so that you can explain how popular and important the man's been all along. It helps people to cross-reference...[in] thinking on your feet, I guess, because it shows them that it's all of a piece. (JW I)

Knowing one's subject makes is possible "...to think on your feet..." and spontaneously make connections that will be useful to students. "But if they had a teacher who was staying one page ahead of them in the book--and there are people who operate that way--then..." such connections could not be made, and much richness in the subject would be lost. (JW I)

Teachers can cope with their own ignorance by organizing classes in a rigid and traditional form. But they also can employ activities that permit improvisation as long as they keep it away from deep subject matter. High school teachers who teach history or social studies by discussing daily newspapers sometimes take this approach, as do primary grade teachers who organize classes around group activities--games, songs, field trips, and the like--that interest children without

carrying much intellectual content. But in such cases teachers' thin subject matter knowledge restricts their capacity to improvise, and their ability to learn from their own work and from their students. One elementary school teacher with whom we spoke probed the differences in her own knowledge of English and mathematics, and the impact these had upon her teaching.

> I guess that in the language arts area my teaching style, I think is not, it is not totally teacher centered. I think that I am able to give them my knowledge of the subject and because of my love for it, I'm able to have a pretty good balancing between the child and the teacher as far as a give and take and eliciting a lot from children. Now unfortunately I am not able to adhere to that same philosophy in math. If I felt more secure in teaching math I would try to do that. I would try to have more of an inquiry kind of approach to it. But it is not my favorite thing to teach so I probably am more, just more lecturing you know, and showing and such than I would like to be. (JN I)

This teacher's insecure knowledge of math had her teach it in a lecture format, to restrict classroom interaction around the subject. She went on to make the same points about other subjects.

> In social studies it depends on the topic. If it is something that I'm really interested in and I can bring language into it, I will be able to teach it with some kind of an inquiry approach. If it is a topic that I'm not sure about I probably hold on to materials more and more and kind of feed it to the kids. And the same thing with science. It depends again on the topic. (JN I)

To be effective, then, the foundation of knowledge in improvised performances must be deep, familiar, and thoroughly assimilated. For only then is knowledge available when there is little time for reflection or refreshing recollection. While technical knowledge is a large element in interactive improvisation, then, to be usable such knowledge must be tacit. One of the elementary school teachers with whom we spoke talked about the differences between her relatively weak knowledge of mathematics and her work in English and social studies.

> I'd like math to become as creative and intuitive to me as my other teaching is. I mean, I know what you need to know and do in writing and reading and social studies and I can pull it together and integrate it and do it well. And I don't have that internal sense of the way math happens....(EP I)

This teacher went on to discuss her efforts to deepen her knowledge of math, and she said that her teaching had improved somewhat. She no longer worked just by the book. But she still felt relatively insecure in the subject, and worried about moving away from conventional methods.

> ...there's a tremendous conflict between the demands of the society in teaching strict computation and my belief in what teaching is, which is the thinking process. So every time I spend three days doing something else, not doing my computation, then I get all neurotic and paranoid. Though in myself I believe that's how you teach math. That's one of life's conflicts. But, I think that if I got a more internal grasp of it, then I'd be able to integrate it and find it everywhere and then I wouldn't be nervous. I mean, I'm not nervous when I don't do reading in [ability] groups. (EP I)

Thus, while all teachers must improvise, the extent of such work varies greatly depending in part on teachers' command of their materials, in part on their interactive skills, and in part on their ability to connect the two. Many teachers restrict the uncertainties by reducing the opportunities for improvisation, but they thereby also restrict their students' and their own opportunities to find challenge and excitement in the work. There is a lifetime of learning and excitement in a subject if only one knows it well enough to see the many puzzles it contains and appreciate the many views that others can take of an issue. But teachers who have been taught that the knowledge required in teaching is mastery of a text, and that the teacher's job is to tell students the right answers are unlikely to learn much from their own subject or be excited by it for very long. They are thus also unlikely to take the chances that extensive improvisation requires. Their classroom performances will be jointly produced with students, but the students' contributions will be limited in content and likely passive or unproductive in character. Teachers' performances are never theirs alone, but if teachers are not sufficiently in command of their subjects to take intellectual risks with students they will restrict what students might learn.

3. INTERACTIVE IMPROVISATION AND COMPETENCE

Not all teachers rely extensively on interactive improvisation, though it is difficult to teach without some such reliance. Even among those who do improvise extensively, not all do it well. But consider for a moment certain paradoxical qualities of competence among those who teach well by means of extensive improvisation. They must have a reasonably deep command of their subject otherwise they could not capitalize on the many opportunities for teaching and learning that ordinary classrooms present. Yet even with such deep knowedge teachers frequently feel that they succeed by the skin of their teeth. They must respond quickly to students' questions, comments, and ideas; they must deal constructively with many conflicts and mistakes concerning subject matter; and they must have the skills and knowledge to manage all this in a fluid and unpredictable social situation. In such work teachers rarely can have the benefit of much reflection or even brief pause, and as a result the knowledge on which their responses depend is often unavailable to their own consciousness. They frequently don't know why they failed or succeeded--often they can say no more by way of explanation than "intuition." They therefore feel that they are skating on thin ice, and are perhaps ill-prepared.

To make matters worse, improvisation is rarely

noticed in teachers' training or in academic comment on teaching--despite the fact that it plays a large and distinctive role. Therefore teachers' first professional exposure to the improvisational aspects of practice typically occurs not in training but on the job. Training for and commentary on teaching instead tend to mimic the deductive, end-to-means reconstruction of how practitioners work that is found in commentary on other practices, particularly technology and science. This reconstruction is almost comically overdrawn, yet the caricature has currency. Teachers are exhorted to become good planners--to learn how to set specific objectives, to determine the proper means to achieve them, and then to march ahead from the first to the second by means of pre-arranged sequences. Planning and analysis are of course useful--they can aid improvisation--but overstating the possibilities of foresight can heighten practitioners' sense of incompetence, or their contempt for the academy's approach to teaching, or both.

Performance in practices like teaching is analogous to finding a way through uncertain terrain--making up maps, inventing new paths and destinations, finding old ones again, and improvising in other ways as we go. But all the while those leading the expedition must encourage the commitment of their fellow travelers, must

support their sense that the journey is worthwile, and must give evidence that it is well-conducted. Doing such work, whether in teaching small children to read or in teaching adolescents calculus requires considerable tact and skill. But such improvised work also lends itself to the sense that performances are only a little skilled, or maybe even a fraud. Worries about the character of competence may be rooted in the very nature of good work in this trade.

V. JOINT PERFORMANCE AND JOINT EVALUATION

Teaching is a profession of social interaction, and so all successful performances are teachers' and students' joint productions. But in order to act students, like teachers, must judge, and decide. Will they attend to the lesson? Can they understand the teacher? Do they want to? Is the lesson interesting? Is the teacher fair? Is the class conducted well? Teachers' actions are not the only influence on how such questions as these are answered. But students ask and answer these and many other queries in every class, and their teachers' actions do offset the answers--indeed, they often shape which questions are asked. Because students are active agents in the classroom then, they are also important judges of teachers' work. Students regularly evaluate their teachers' performances, and base their own classroom actions on these evaluations. Teachers must respond to these evaluations and consequent actions in their own work. Teachers' performances, and their skills, are thus shaped by their students' judgments.

I. IMPLICATIONS FOR TEACHERS' WORK

Because students are the first-line judges of teachers' work, good teachers pay attention to students' evaluations. They become close observers of their charges, and this affects teachers' performances and their thinking. We can find evidence of this in a general way in _____

the ways that teachers talk about how they figure out how well they are doing. One teacher with whom we spoke said

> ...I really think the main way I know is from watching what's happening either by the child him or herself, or our interaction, and seeing the kind of work that's happening....(SS II)

Notice that this teacher mentioned three specific foci for observation: how the child is behaving, his interaction with the teacher, and his work. To do their jobs well teachers must develop skills of observation on all three fronts, learning to see small signs and interpret them wisely. A good primary teacher will notice inattention in a student, and deal with it before the student loses control of the lesson. If a student clings or in other ways tries to monopolize her attention she will find ways to divert the student so she can work with others. And she will arrange things so she can watch students doing long division, so as to pick up reasoning problems before an entire assignment is complete.

Another teacher with whom we spoke put these points in a slightly different way when she said:

> I think you can observe [how things are going] by the process the kids are going through in doing something. If they're indeed doing it and they're excited and enthusiastic about doing it. And you can judge from the products that come out of it. (JN II)

The teacher we quoted initially elaborated these ideas in a useful way, calling attention to some of the qualities she looks for in childrens' work. By implication this teacher is also pointing to how closely she must observe students and their work.

> Well, I know things are going well when there is an energy around the task that becomes, or is, productive for the child. And it may not be this minute, or within the next five, but that there is a curiosity and an energy that propels the child at whatever speed. Which is very different from a sort of grinding, halting....Another way, when I think about a child...it has to do with how often they return to it [some subject or task] on their own, independently. Whether it is science or blocks or writing. And it may be something that the child can do on his or her own, but there is a quality of attention about the work that speaks involvement. (SS II)

Another teacher summed up these points about observation, in response to a query about how she knew how her own work was going. She said that she watched her students to see how she was doing--noticing

> Body language, facial expression, enthusiasm for what we're doing, enthusiasm for the task, process, whatever, engaged. You have to do it in different doses with different kids... (EP II)

However highly developed, though, teachers' observational skills are never enough. They frequently fail to see important things--even obvious ones. This teacher went on to say

> ...you can miss too. The other day I was doing a dictation and feeling very confident about everybody...and to my student teacher's horror ..she walked by somebody and he was crying. Water all over his paper! ...So you can miss. You can certainly. And I wasn't aware of it. (EP II)

Perhaps because of such instances many teacher are particularly alert to their students' evaluations of ongoing performances. As their discussion here suggests, not all of students' evaluative response is conscious, nor if conscious is it always articulate.

But some teachers realize how essential these continuing evaluations are to their own success, and so they try to create conditions that encourage students to keep them informed. One teacher echoed the ideas presented above, saying that she depended on

> ...the feedback from the kids. Both verbally and what I see them writing....when I walk around the room and I see that 90% of them got the right answer and did it right, then I know I've done a good job academically, in terms of teaching the material. (FR II)

She went on, calling attention to the ways in which the organization of a class can affect what a teacher learns about her performances.

> But I find that the atmosphere that I've created in a class, the more open it is, the more likely you'll be able to tell whether you've done a good job. And they let you know all the time. They'll tell you when you didn't do such a hot job of explaining. A kid'll raise his hand and say, "you really just confused me more." I think kids have to feel that they can say that to you, because otherwise you'll never know. (FR II)

In effect, this teacher tries to learn about the quality of her work by encouraging students to offer their assessment of how things are going. Her comment is also useful because it alerts us to strategies that teachers can use to gain access to students' assessment of their work--beyond just paying attention. And it calls attention to the potential importance of such strategies in improving teachers' understanding of how

they are doing. But encouraging students to share their evaluations of on-going performances is only one way of dealing with the large role that mutual evaluation plays in such interactive trades as teaching. This teacher's discussion also calls attention, by contrast, to another way of dealing with this feature of performances--i.e., ignore it. Many teachers who manage their classes in traditional, highly structured ways leave much less room for students to express their assessment of on-going performance, or at least to express them in ways that teachers might find useful. Students' assessments are instead either repressed or manifested in inarticulate ways--boredom, restlessness, day-dreaming, or rote compliance. This does not mean that students' educations are less important to the progress of the class, only that they are important in less articulate ways. But however students respond in such classes, our point is simply that teachers can try to arrange their classes so as to stifle students' response. These teachers rely more on authority than on intelligence to manage students' assessments of their performances. But whatever strategy teachers choose, they must somehow manage students' evaluations of their work.

2. IMPLICATIONS FOR TEACHERS' THINKING

A third point that flows from this discussion concerns the ways that teachers' intelligence can be adapted to the interactive character of their work. One aspect of this has already been mentioned--many teachers develop skills of observing students' behavior,

in addition to their skills of diagnosing students' written and oral work. Such observational skills have many interesting features, but one is of particular interest here: when teachers think about their work they think about particulars. Because their work is interactive, to pay attention usefully they must attend to specific instances. They reflect on what one student misunderstood, what one exchange signified, what one set of badly done spelling exercises says about previous lessons. Teachers do not think only about particulars--they also worry about how much mathematics students should learn, how best to teach it, and whether instruction should be offered about the Holocaust, or nuclear war. Teachers often appreciate the logic of a subject, or understand the structure of a

discipline. But when they teach, such understanding and appreciation must be filtered through particular interactions around particular examples, exercises, questions and answers. Otherwise the teachers' general understanding will not reach their students.

This particularity is evident in the way teachers talk about their work. They focus on specific cases--a student who cracked a reading problem, three students who disrupted a class, a class that went wrong because the student teacher misconstrued the lesson. Teachers' conversation is focused on specific interactions because those interactions are the vehicle for their work. It is only through such particular cases that math can be taught in school, or reading mis-learned. Consider all the instances (in preceding chapters,) in which we have used teachers' words to explore and explain their work here. Most refer to particular instances: they tell a story, or they refer in a general way to the particularity of teachers' trade. Some commentators take this particularity to be a mark of simple-mindedness in teachers, but they are mistaken. Not all teachers are smart, but their intelligence adapted to their work, and their work centers on social interaction--which by its nature is particular. When teachers talk about their work they therefore tell stories and comment on them.

This feature of teachers' thinking is worth mention in part because there is such a great contrast between the ways teachers think and the ways that most commentators and reformers of teaching think. By now most commentators and reformers are academic analysts who have been trained in one or another of the social sciences. There is a great difference between excellent analysis in teaching and in social science disciplines. The teacher's excellent analysis consists in finding a world of meaning in the particulars of interaction. The social scientist's excellent analysis typically consists of discriminating among abstractions, or in generalizing about large bodies of evidence. Often this evidence is observed by others and reported to the analyst second-hand, in words or numbers. Teachers do not think in the way of social science disciplinarians, but that does not mean thaey do not think well.

There is more here than a mere difference. Story telling and the analysis of particular social phenomena are approaches to understanding that have only modest currency in the academy. Especially in schools of education, where the abstract subject matter and generalizations of social science have long been seen as a ticket to academic respectability, such story telling usually evokes a bored or even horrified reaction. It is dismissed as "telling war stories," something no respectable social scientist would

do. Teachers' chief means of reflecting on their work thus finds little appreciation in those intellectual centers designed to improve our grasp of education. The academics specifically charged with understanding teaching and interpreting it are, by virtue of the dominant modes of thought in the universities, singularly ill-equipped to take account of how teachers think about their work. Many academics assume that because teachers do not think in the ways most social scientists are accustomed to, they do not think well.

This point about teachers' thinking is also important because many efforts to improve teaching seek to improve teachers' ability to analyze their own work. In itself this seems reasonable, but most, indeed nearly all of these recent improvement efforts equate analysis with academic analysis. Reformers exhort teachers to improve their ability as detached analysts of their own practice. Some argue that teaching should be viewed as a decision making trade, and that teachers should be trained to be better decision makers. More careful definition of goals, better understanding of alternative ways to reach each goal, a better grasp of how to assess the relative effectiveness of alternatives, and a better command of how to evaluate their own progress--all these and others are advertised as essential elements in teacher improvement. A few reformers have taken up the whole package or something

like it, while others have concentrated on one element or another. Some, for example, try to provide teachers with better skills in deciding about alternative ways to produce one particular output--like reading. Others try to teach teachers better evaluation skills. Still others try to improve teachers' ability to define objectives precisely, or try to persuade teachers to adopt packages of objectives already so defined. Some other reformers of teaching have tried quite a different approach--they construct simulated settings in which teachers can work at a prescribed task, scrutinize the result, reflect on it, identify weaknesses, and try again. In this case the notion is that teachers can learn from the opportunity to practice outside their classes, and then carry the learning back into class.

These reforms and others assume that the best judge of work in teaching and similar trades is one who takes an independent and dispassionate stance, outside of performances. The good decision-making teacher is thought to be one who can stand back from her classroom work and figure out what her goals really are. The good evaluating teacher is one who can look coolly at the results of her work, and figure out where it has gone wrong. They often assume that practitioners can take this stance on their work as it goes on. The decision-making and evaluating teachers above are expected to perform their analytic work in the middle of things, assessing goals

and evaluating performance more sharply as classroom work proceeds. But sometimes it is believed that such reasoning can be done outside of performances and then plugged in at the right time. In either event, those who try to improve practitioners' analytic skills seem to assume that teachers can integrate an external judge's perspective into the ongoing action. They assume that teachers can analyze their work against external standards while working inside; that teachers can imaginatively stand outside performances at the same time as they actually produce them, standing inside.

From time to time, of course, workers in all trades step back in their imagination, and as their work goes on they consider it as an external judge might. Workers in any trade consider matters as their customers, or supervisors, or critics might--and certainly teachers do so. But my analysis suggests teachers have unusual difficulty adopting such a detached perspective, because of the pressures to pay attention to the other participants in their performances. We asked teachers what they did or who they talked to when trying to figure out whether their work was going well, or needed improvement. Listen to one teacher, who told us:

> I know when it's not going right and I feel "oh, I bombed out on working with that child or in presenting that today...

So one point, seemingly simple enough, is that teachers listen to themselves--they know when things go poorly. But how do they know? Well, this teacher went on to tell us about:

> One child in particular I had, we had this same scenario several different times where she has been doing math with rods which she can do, there is not question about that, alright, but there is sort of no independence in doing it on her own at all....and this was just driving me bongo..... (SS II)

In fact, then, this teacher didn't just listen to herself; she attended to a child, and to her reaction to the child's work. One theme in teachers' answers to our query, then, is one we already mentioned--they pay attention to students to find out how they are doing.

This teacher went on to say, though, as several others did, that she sometimes turned to colleagues outside the classroom for help. She continued, speaking of this child, that she:

> ...decided in [working with her] that I wasn't, as I usually do with children, making sure that there was success, repeatedly at the outset...
>
> ...<u>just talking with this former teacher and thinking about that</u>... I wasn't setting this up right you know. So the next three times I did it I made sure that happened and today was the fourth and it was a veritable breeze, you know. She did it.... (SS II) (emphasis added)

So a second theme is that talking to other teachers can help in figuring out what's wrong, or how to get it right. As this teacher told us,

> most often I talk to a friend or colleague about it or there are some sources I go back to and I talk with with the student in the classroom--a student teacher. (SS II)

But then she continued, turning to a different idea about where teachers find help, she said:

> Sometimes I'll turn to another child and say "I'm not helping him with this very well, could you find a way to do it?" And I don't feel that is abdicating when I involve another child, because often, often they make the connection and the main thing is for the connection to be made, not who's helping it to be made. (SS II)

This is the third point--teachers must find most sources of evidence and help within their own classes. Recall a teacher's view, quoted earlier in this chapter:

> [I rely on] the feedback from the kids. Both verbally and what I see in their writing... They'll tell you when you didn't do such a hot job of explaining. A kid'll raise his hand and say, 'you really just confused me more.' (FR II)

As teachers try to step back from their work--unlike those workers who produce ideas or objects--they must take account not only of external judges but also of twenty or thirty judges sitting in their classroom. These judges make their own analyses of teachers' work, and their own determinations about its quality. If teachers' work is to succeed they must satisfy these internal judges. Most analytic reforms of teaching assume that teachers can assume a detached perspective--moving outside their own performances as they produce them--but the interactive character of these practices discourages such detachment. For the most important critics and consumers of practitioners' work are the people on whom the work is done. Good practitioners therefore pay close attention to the judgments that are always occurring inside their performances, and adjust their work in light of them. Many reforms aimed at making practitioners better at stepping back from their own work thus run counter to interactive pressures that encourage practitioners to attend to the analyses and evaluations arising within their performances.

This is not to say that teachers do no analysis. There is much thought and analysis in class but it must be quick. It must respond to particular incidents. And it must shift rapidly from one subject to another. Classroom work is typically rapid, and opportunities for reflection are fleeting. There is a great compression of events and few opportunities to stop the music so the teacher can analyze what just happened. Yet these fleeting performances are jam-packed. They are, after all, produced jointly by a teacher and at least several students--often an entire class of twenty or thirty. They incorporate complicated interactions around often dense intellectual issues. As a result, while teachers do lots of thinking on their feet, if they wish to reflect in a sustained systematic way they must do it outside the class.

For these reasons most of teachers' reflection is also retrospective: they recall and reconstruct an episode, or an entire morning, trying to figure out why things went wrong, or why a lesson turned out differently than planned. Or they

may try to figure out how to deal more effectively with a problem, or a difficult child, in case the difficulty recurs. But whatever the subject teachers must work on it mostly in the solitude of their own mind, with little help besides--their imperfect memories--no other observers, nor even casual bystanders with whom to check their recollections. They can find some help from some colleagues, but even this is limited, since nearly all teachers work alone. No one else sees what puzzles or delights them. And they can expect little help from the people who study education. Retrospective reflection is a mode of thought that is practiced in the academy--by historians in one way and psychotherapists in another. But neither history nor psychotherapy figure prominently in colleges of education, nor are teachers trained to observe their own work or to reflect on it later. Retrospective reflection is a form of analysis that seems foreign to most social scientists, and they increasingly dominate the education faculties that train teachers.

Thus, there is a great gap between the habits of thought used by most of the academics who try to understand and reform teaching on the one hand, and teachers' habits of thought on the other. Teachers attend to particulars--they try to search out meaning in individual events--while social scientists attend instead to generalizations aimed at detecting broad regularities in how society works, or predicting how it will. Teachers think that valid knowledge can be found

in specific accounts of a single event, or a small cluster of events, but most social scientists think that valid knowledge requires generalization about a few features of many events. When teachers try to improve their work they turn mostly to retrospective analysis of a given situation; but when social scientists try to improve teaching they search for already-established generalizations about what, on the average already has worked, and thus can be counted on to work in the future. When teachers think about a solution for a problem they look to a particular remedy for this difficulty, for that student, in this situation, but social scientists look for solutions in that non-specific place--the average classroom. The academic disciplines that have been most preoccupied with the analysis and reform of teaching--psychology, sociology, and economics--are the disciplines with the deepest of affinities for the habits of academic thought summarized here. And the disciplines with closer affinities with the ways teachers think--history, ethnography, and psychoanalysis--have the most shallow roots in the study of teaching.

I do not know if this gap can be closed--that is a subject that extends far beyond this chapter. But one step in the right direction would be to recognize that teachers' modes of thoughts are adapted to their interactive work, and that efforts to improve their work by improving their analytic abilities will come to naught if the improvement efforts are not fitted to teachers' work. A second step in

the right direction would be to recognize that the large gap between teachers' habits of mind and those of most social scientists who study teaching are not the result of teachers' obtuseness. Good teaching is not the same thing as good social science analysis, and the teacher's analysis of her work is not the same as the academic social scientists analysis. They use different languages because their practices are different. We would not try to improve musical composition by getting music critics to teach aspiring composers how to write about music. We know that writing music and writing music criticism are quite different trades, requiring different knowledge and skills. Yet much academic research and many practive improvement efforts assume that if teachers could be made to think in the ways of university analysts, teaching would improve. If we wish to improve teachers' analytic skills we must find modes of analysis--in teachers' work and in academia--that are adaptable to the work that teachers do.

3. COMPETENCE AND INTERACTION

I have argued that determinations about the quality of teachers' work are distinctive. In most other trades the terms of reference for judging performances lie outside the performances: the materials of practice are inanimate, and evaluating practitioners' performances and results is a matter among practitioners, those who consume their products, and others who comment on and criticize the performances and products. But the first-line consumers and evaluators of teaching are students. Practitioners and their materials engage each other on two levels, analytically distinct but closely related. On one they collaborate in producing various outputs. On another they judge each other's work as performers and collaborators. To be successful, teachers must somehow deal with these internal consumers and critics of their work. Competence in practices like teaching therefore can be shaped by participants' judgments about competence. Recall what the teachers quoted earlier in this chapter said. In one way or another

> ...they let you know all the time. They'll tell you when you didn't do such a hot job...(FR II)

But if all workers in interactive practices must make such adjustments, they do not all make them to the same degree, or in the same way. In the case of teachers, the people on whom they work are not equally well situated to judge

practitioners' performances. All students evaluate their teachers' work, but high school students are better situated to both restrain their judgments and to act on them effectively than kindergarden students. In addition, teachers who set rigid discipline for their classes and who stick to a fixed curriculum may have less direct evidence on their competence to deal with than those who take a more interactive approach to teaching.

Another factor that affects the influence of internal judgments about performance is the nature of output. All results of the family of practices to which teaching belongs are qualities of persons or organizations--order in a crowd, profitability in a firm, self-esteem in a patient, or reading prowess in a child. But some of these outputs are actions or indices of behavior that have a relatively accessible common meaning, such as jaywalking, or computational skills. We believe that observers are at least as qualified to observe and assess such outputs as those who produce them. But other outputs--self-esteem, respect for others, patriotism, or civic virtue for example--are states of mind whose meaning is less settled. Many of these less settled results are therefore commonly thought to be more accessible to those who experience the states than to observers. A therapy patient is for this reason believed to be well qualified, vis-a-vis an external observer, to report fairly on his self-esteem, and on what effects it. By contrast, students of mathematics are not thought to be better situated to report on their grasp of [illegible] who know mathematics.

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Many outputs of indeterminate practices are more like self-esteem than set theory. One thinks of students' curiosity, their desire to learn, or their appreciation of particular subject matter. Many outputs of politics are of the same sort: citizens' satisfaction with government, their beliefs concerning fairness in the distribution of public goods, or their views about the worth of public services. Most outputs of psychiatry fall into the same category: the sense of self-worth, happiness, confidence, or belief in one's ability to cope with problems. Indeed, because the most important results of psychiatry are states of mind and feeling psychiatric patients are uniquely well-situated to judge the effects of various therapeutic interventions. The definition of competent performance in psychiatric practice is therefore extraordinarily vulnerable to situational influences. This is one reason why there is such a rich variety of therapeutic traditions, and so many implied concepts of competence. It also helps to explain why, in several of these traditions, competent performance is announced to be whatever participants in performances find useful.

Of course inner states can be communicated to others. The curious student may ask lots of questions, and satisfied citizens may turn up in municipal offices and announce their delight with government. People communicate their states of mind with the look on their face, or the look of their walk.

But we can have such states without advertising them, and we often find that they are difficult to make sense of, yet alone to communicate.

When practitioners work on outputs of this sort they are especially vulnerable to situational pressures on their definition of competent performance. Psychotherapists' working definitions of competence therefore seem more vulnerable to such pressures, on the average, than teachers'. Patients' claims for the success of seemingly peculiar performances--therapy that depends on their screaming, for example, or that appears to involve abuse by therapists--certainly does nothing to increase the sense that psychotherapists' knowledge and skill are general, solid and reliable. Such cases are often dismissed as fraud, incompetence, or malpractice, but they are in addition evidence of the extraordinary extent to which competence in this trade can be shaped by the patients' judgments.

One implication of this discussion is that teachers who attend to students' self-esteem, or even their pleasure in learning may have a concept of competence that is more vulnerable to students' evaluations than those who focus on computational skills. When working on such outputs competence may seem as must a joint social construction peculiar to a given performance as an exercise of specialized skills generally shared within a field of practice.

Another implication, perhaps a special case of the first, is, that teachers can influence some of the situational pressures on their working definition of competent performance, simply by choosing to work on some outcomes and not others.

But another point is that no teacher can completely or perhaps even largely solve this problem on their own, because neither they nor their students are the only influences on working definitions of competence. Neither students nor teachers can put any meaning they choose on performances. They work in society as well as in classrooms, and many standards for judging their work arise outside their schools. Typically these standards shape conceptions of competence that develop within classrooms, either through the action of external agencies or through the expression of such standards by some of those in the classroom, or both. For teachers the most important point is that conceptions of competent performance often conflict. External standards conflict with each other, and they often conflict with those that arise in particular schools or classes. Managing such conflicts among performance standards is a large part of teachers' work. Many teachers know, for example, that state legislation requires minimum competency testing for their classes--the tests are designed to make sure that all students are learning "basic skills." But many teachers believe that the tests are naive and badly constructed, and that teaching to them will mislead students about the nature

of mathematics, or reading. These teachers may have oriented their reading instruction to a broad comprehension rather than to extracting specific bits of information; they may have taught math with less emphasis on computation than on understanding basic matheamtical concepts. Their students may delight in these approaches, contrasting them with previous classes that bored them. Or more likely, some students will prefer one approach and some will prefer the other. These teachers feel obliged to follow broader social standards, but they also feel responsible to their own vision of current instruction. In addition they feel responsible to their students, and to providing instruction that makes sense--even if what makes sense for John is at odds with what makes sense for Jane. Teachers must find ways to managing such conflict. One way to do so, of course, is to throw up their hands and teach to the test, or conversely, to ignore it. But many teachers in such situations cope by finding ways to satisfy various standards. A teacher might orient her reading teaching to comprehension, but with

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additional exercises in answering multiple choice questions of the sort that appear on minimum competency tests. Or she might even explain the difference between the two approaches, and point out that while the test is severely limited students must try to do well on it. These teachers could take a similar

approach with math instruction. But they need not make their approach explicit in order to make it work: good teachers routinely try to improve their students' grasp of basic mathematical concepts and to improve their mastery of computation. They try to lead students to a broad appreciation of literature and to improve their ability to answer specific and even simple-minded questions.

A great deal of teachers' work consists of finding ways to deal with conflicts among performance standards, and thus conflicts over competence in their teaching. High school English teachers who instruct vocational and business students typically face audiences with little interest in the classical literary curriculum. These teachers may ignore the students and teach the curriculum. Some students and others outside the classroom would find this sensible, but others would say that while heroic, it was not sound teaching. Or the teachers may ignore the curriculum and teach students how to write business letters, or read the want ads. Some students, and some outside the class would find this more useful, but others would say it was cowardly teaching, poor even if carried off well. Or such teachers might invent ways of making some literature accessible to their students while also teaching basic reading and writing skills. In the last case teachers manage the conflict by devising a way to respond / competing standards of competent performance.

Some extraordinary teaching occurs under the pressure of such contrary forces but managing such dilemmas is not always or even often work of heroic proportions. The everyday business of social workers, politicians and teachers consists in resolving conflicting claims in their work. Practitioners often don't solve problems--in the sense that there is closure--but they do devise ways of managing dilemmas, or of otherwise coping with seemingly irreconcilable conflicts. One implication of these points concerns our broad understanding of the teacher's trade: teachers are practical philosophers, coping with and managing conflicting moral, political and educational claims in their daily work. All humans do this in order to live, but only those who work on other human beings must do it as a regular part of their professional lives.

A second implication conerns a narrower point--the definition of and competence in teaching. Teachers are in a unique position as they try to devise working definitions of competent performance. Like workers in any field they must take into account the views of critics or patrons--supervisors, parents, principals, or legislators. And like other workers they must contend with conflict among such views, or conflict between their own standards and those of critics or patrons. But only teachers and their colleagues in similar trades must also adjust their conception of competence to critics within their performances. Only workers in interactive practices must

devise means to reconcile conflicts between standards of competence arising within their performances and standards arising outside. Such reconciliations and adjustments must be made many times every day, as part of the regular work of trades like teaching. In most practices competence denotes a fairly stable body of skills, generally held within the field. In interactive practices, however, competence can be much more particular and variable, because it is partly the product of mutual adjustments between practitioners and the people on whom they work.